



Anoyatis, G., & Mylonakis, G. (2020). Analytical Solution for Axially Loaded Piles in Two-Layer Soil. *Journal of Engineering Mechanics*, 146(3). [https://doi.org/10.1061/\(ASCE\)EM.1943-7889.0001724](https://doi.org/10.1061/(ASCE)EM.1943-7889.0001724)

Peer reviewed version

Link to published version (if available):  
[10.1061/\(ASCE\)EM.1943-7889.0001724](https://doi.org/10.1061/(ASCE)EM.1943-7889.0001724)

[Link to publication record in Explore Bristol Research](#)  
PDF-document

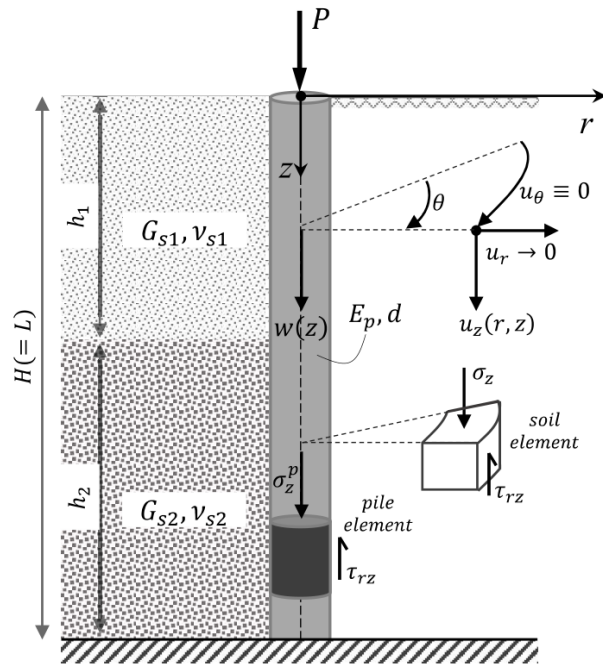
This is the author accepted manuscript (AAM). The final published version (version of record) is available online via American Society of Civil Engineers at [https://doi.org/10.1061/\(ASCE\)EM.1943-7889.0001724](https://doi.org/10.1061/(ASCE)EM.1943-7889.0001724) . Please refer to any applicable terms of use of the publisher.

## University of Bristol - Explore Bristol Research

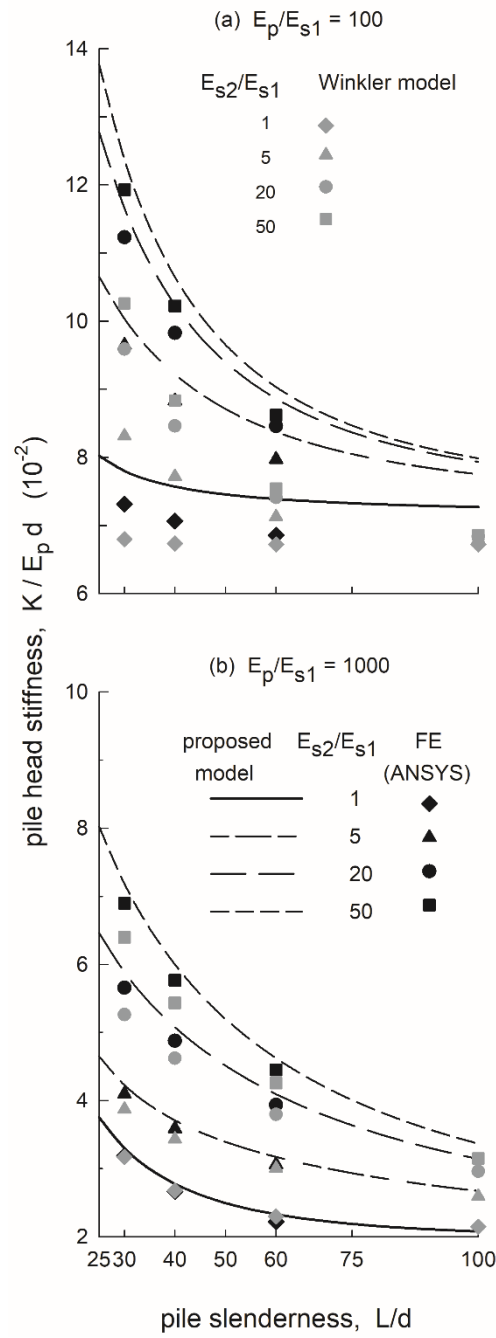
### General rights

This document is made available in accordance with publisher policies. Please cite only the published version using the reference above. Full terms of use are available:  
<http://www.bristol.ac.uk/red/research-policy/pure/user-guides/ebr-terms/>

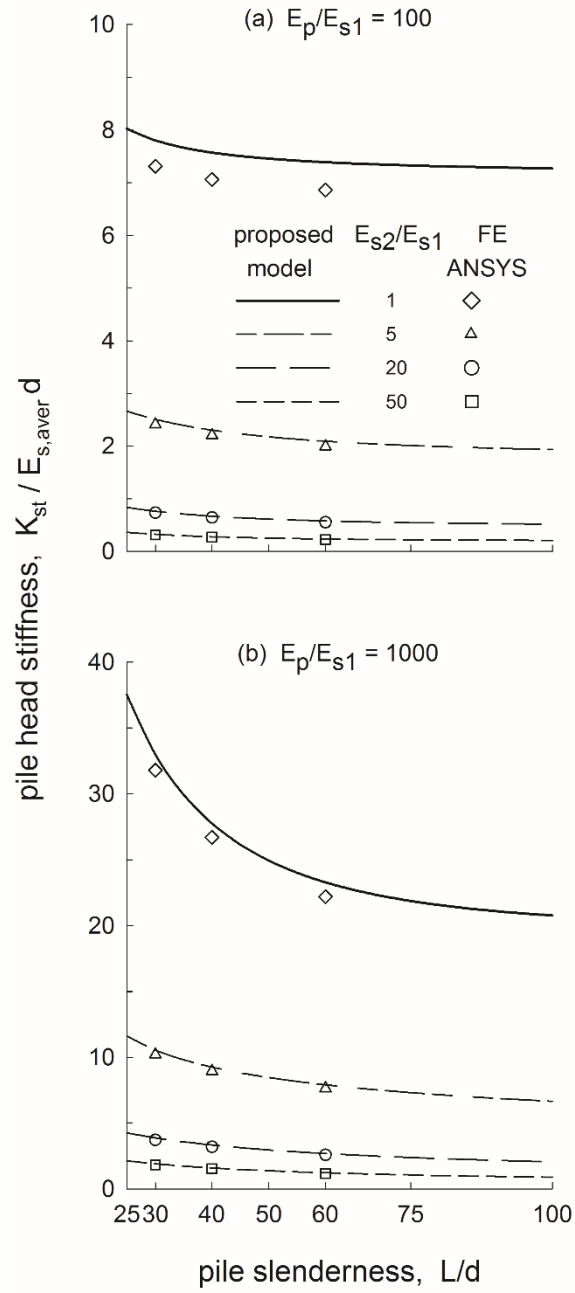
# Figure Caption List



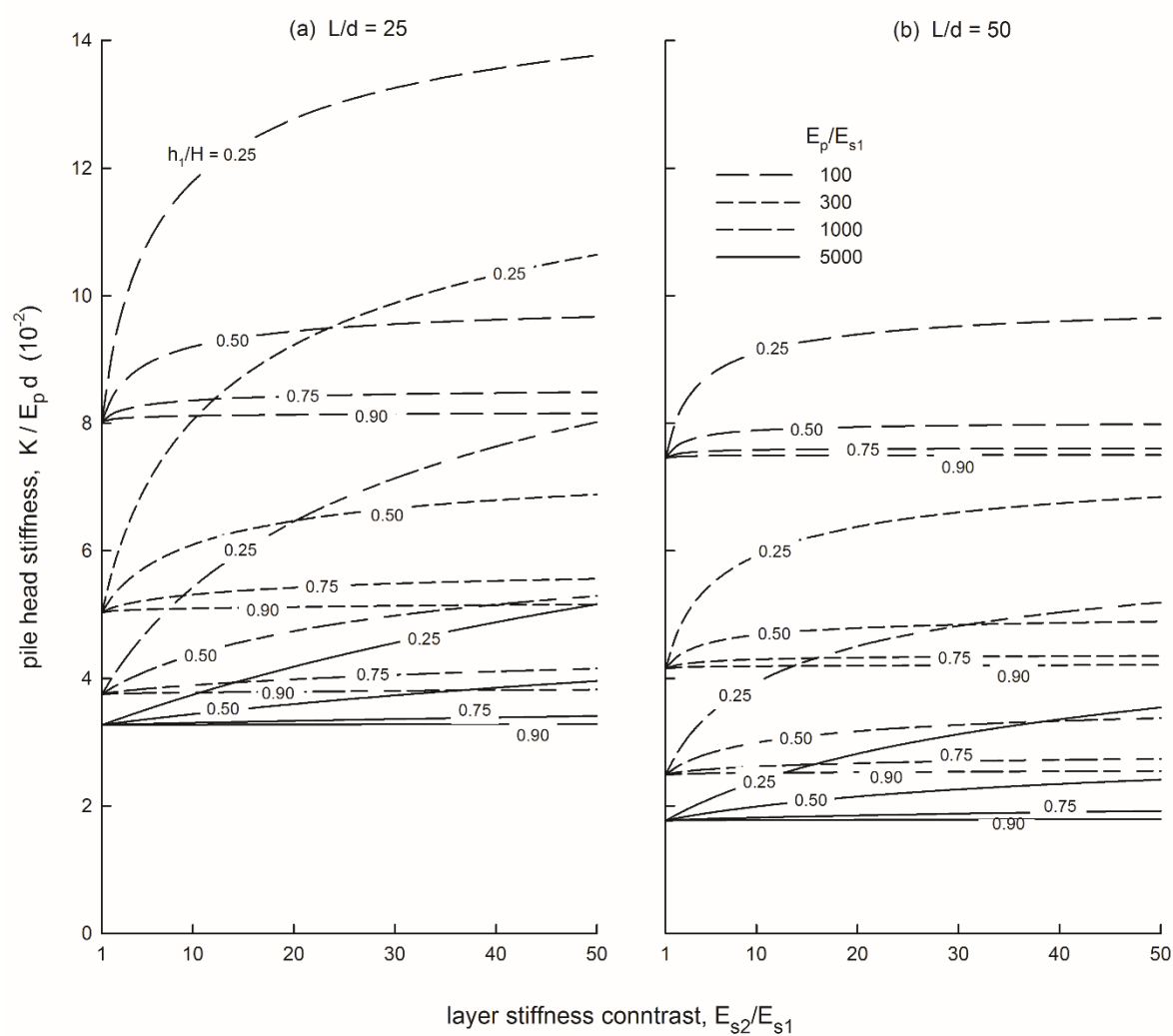
**Fig. 1.** Problem considered



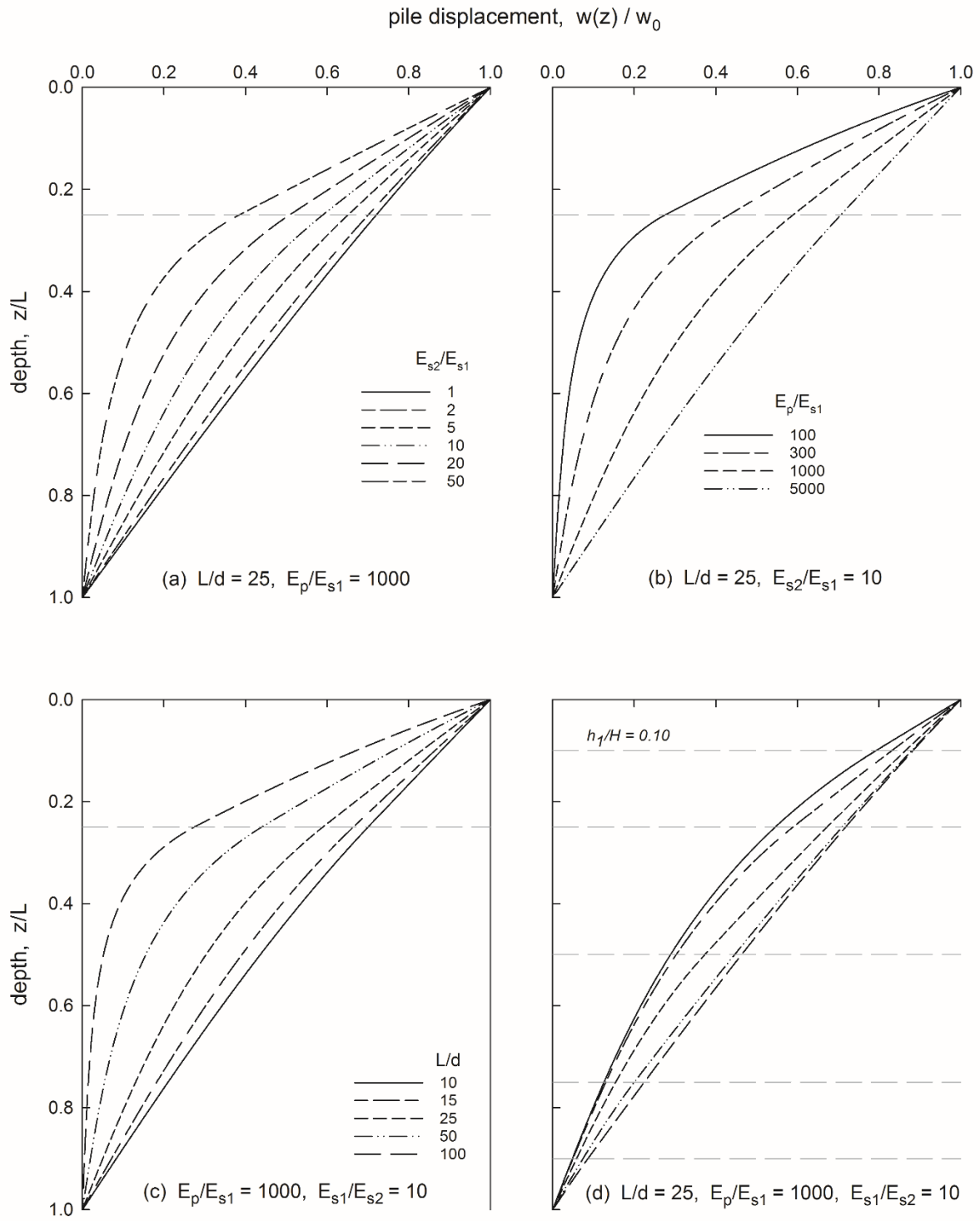
**Fig. 2.** Variation of pile head stiffness with pile slenderness for selected values of the layer stiffness contrast. Comparison with results from rigorous finite element analysis and the Winkler solution of Mylonakis & Gazetas (1998);  $h_1/H = 0.25$ .



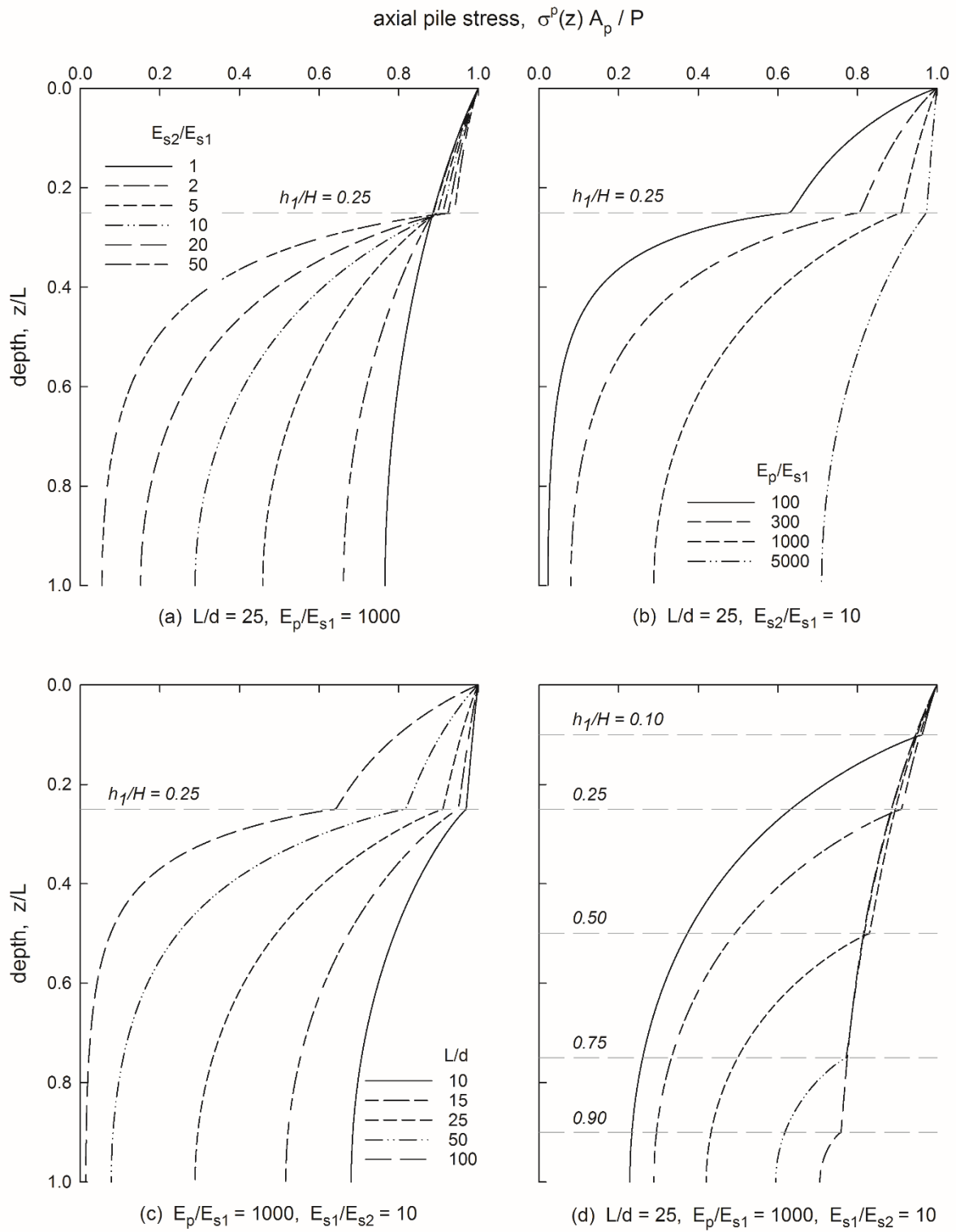
**Fig. 3.** Alternative representation of the results shown in Fig. 2; pile head stiffness is normalized using the average Young's modulus  $E_{s,aver}$  of the soil deposit (Equation 49).



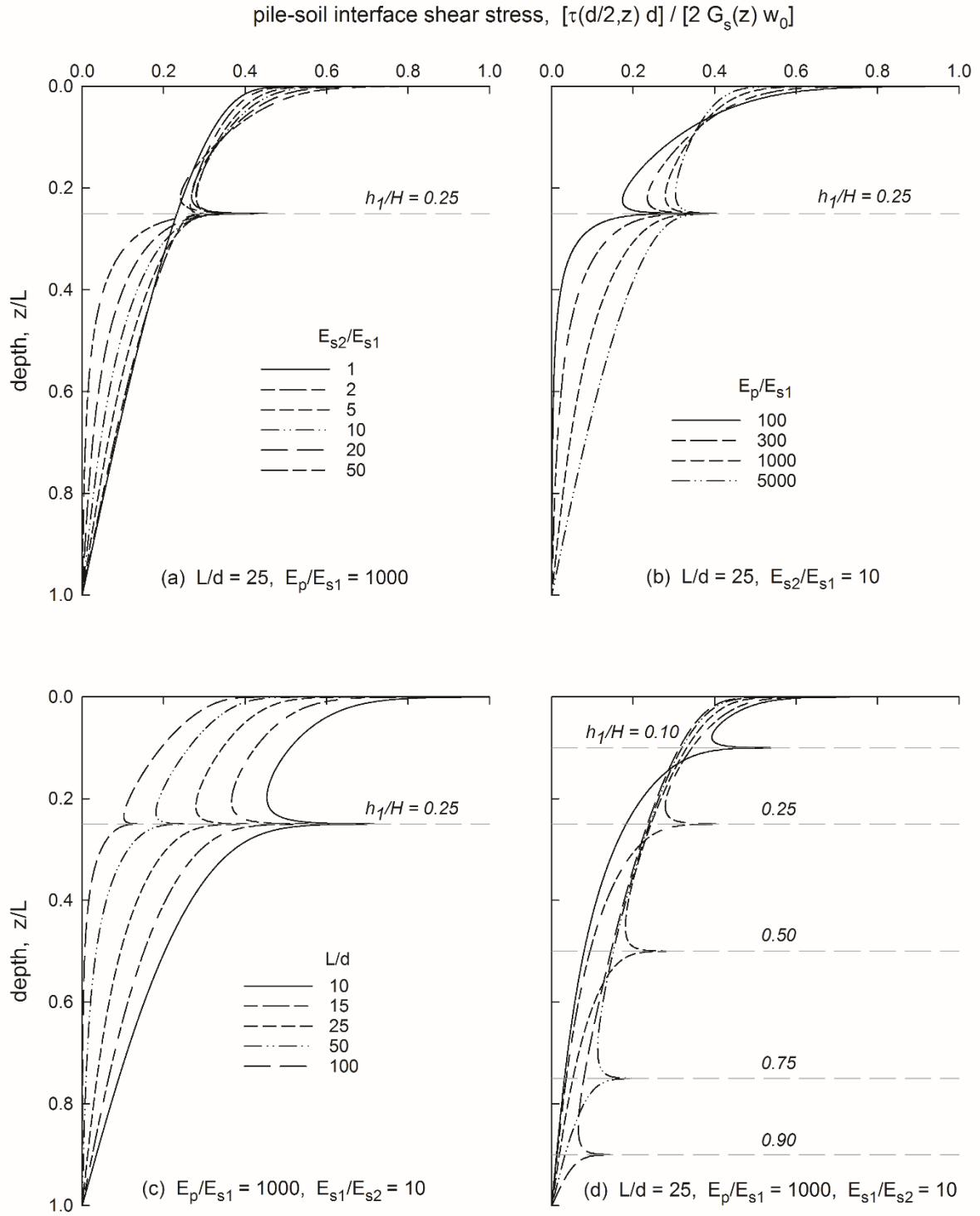
**Fig. 4.** Pile head stiffnesses for a variety of pile-soil configuration.



**Fig. 5.** Variation of pile displacement with depth (settlement) for selected pile-soil configurations.

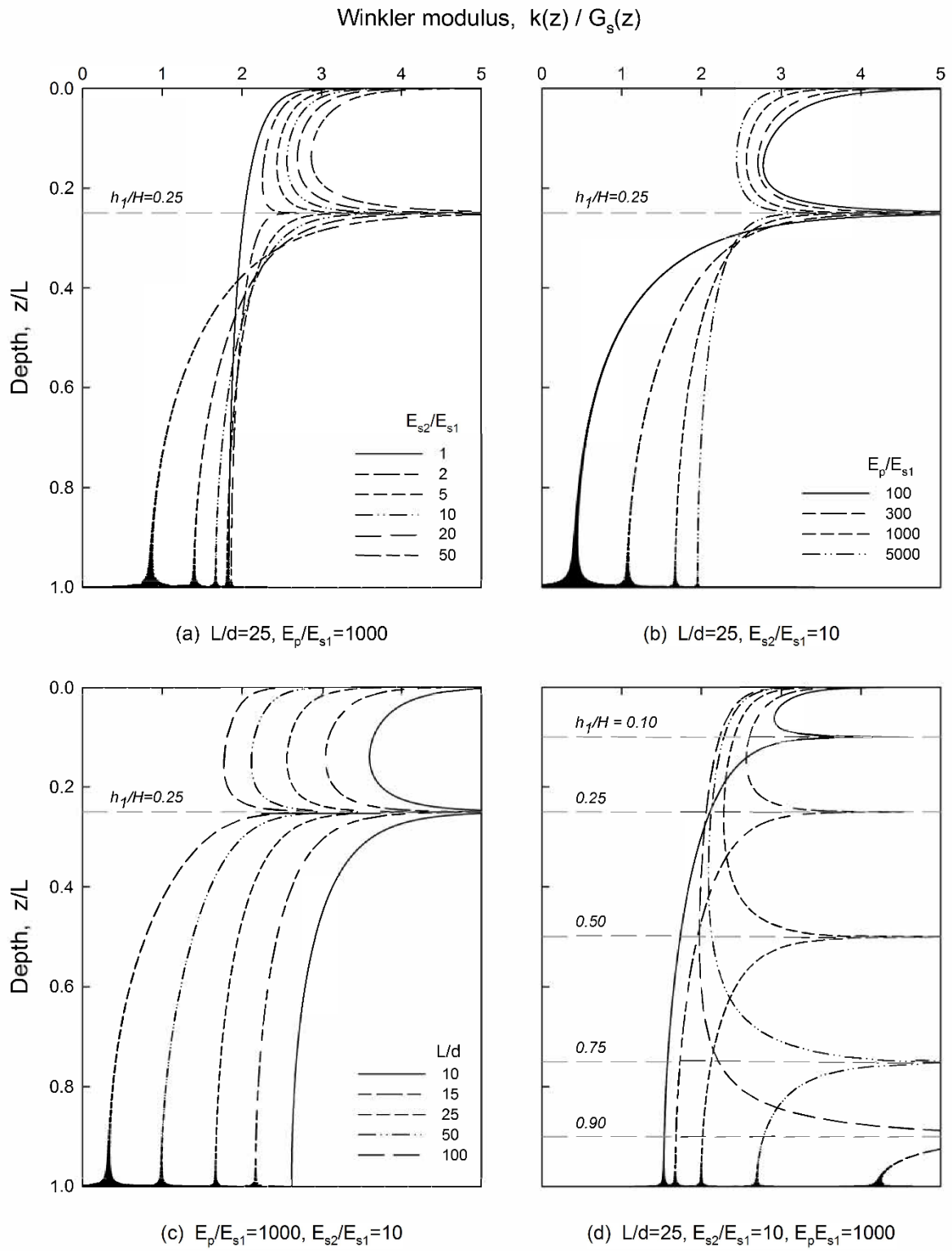


**Fig. 6.** Variation of axial pile stress (Equation 51) with depth for selected pile-soil configurations.



**Fig. 7.** Variation of vertical shear stress at the pile-soil interface with depth for selected pile-soil configurations.





**Fig. 8.** Variation of the Winkler modulus with depth for selected pile-soil configurations;  $N = 1500$ .